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ABSTRACT

The Talents Unlimited (TU) is designed to help teachers recognize and nurture the multiple talents of children. Research based on the work of Calvin Taylor has identified high level talents in which all people excel to varying extents. Taylor has suggested a grouping of talents based on the needs of the world-of-work, specifying the academic talent and five other types: productive thinking, decision making, planning, forecasting, and communication. Each of these talents can function in acquiring knowledge across all subject matter areas. In the multiple talent approach, students develop their talents while growing in knowledge. Every student in the classroom can be successful in at least one of these areas, and these successes will enhance student self-concept and enable the student to achieve more. This Awareness Packet contains the following material about the TU model: (1) a summary of the Talents Model; (2) sample TU lessons; (3) professional articles about talents; (4) juried review of the Talents Model; (5) the "Talents Dovetail" flyer that endorses the compatibility of the talents approach with other instructional innovations; (6) suggested talents reading; and (7) a materials price list. (SLD)

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TALENTS UNLIMITED

A Critical and Creative Thinking Skills Model

Awareness Packet

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We appreciate your interest in the Talents Unlimited model. In this Awareness Packet, you will find.....

- A Summary of the Talents Model
- Sample Talents Unlimited Lessons
- Professional Articles about Talents
- Juried Review of the Talents Model
- "Talents Dovetail" Flyers Endorsing the Compatibility of Talents with Other Instructional Innovations
- Suggested Talents Reading
- Materials Price List

For additional information about the Talents Unlimited model, Talents Certified Trainer contact information, or Talents technical support, call or write the Talents Unlimited office.

Brenda Haskew

Brenda J. Haskew
National Project Director

A Summary of the Talents Model

SUMMARY OF THE TALENTS UNLIMITED MODEL

1. The Talents Unlimited model is designed to help teachers recognize and nurture the multiple talents of children.

2. Nearly all students are talented; that is, can be above average in at least one of the many important intellectual talents we can now measure.

3. Dr. Calvin Taylor's approach to the teaching/learning process is called the Multiple Talent Approach.

4. Talent research has identified high level talents in which all people excel to varying degrees.

5. Dr. Calvin Taylor states that there are several ways of being smart which are related to the world-of-work.

6. Taylor suggests a grouping of talents based upon world-of-work needs, specifying the Academic talent and five other types: Productive Thinking talent, Decision Making talent, Planning talent, Forecasting talent, and Communication talent.

7. Each of the different talents can function in acquiring knowledge across all subject matter areas. In the Multiple Talent Approach, students develop their talents while simultaneously growing in knowledge.

8. Taylor feels that if the Multiple Talent Approach to education is used, greater numbers of our students will be successful both in and out of school.

9. The Multiple Talent Approach is a complex process incorporating cognitive, affective, and psychomotor components.

10. Nine out of ten children will be above average in at least one of these talent areas.

11. Every student in the classroom can become successful in at least one talent area. These successes will enhance student self-concept and enable him/her to achieve more.

Sample Talents Lessons

Grade 2
Productive Thinking
Academic: Social Studies

GETTING TO KNOW YOU!

MOTIVATION: This activity is designed to be used with the second grade Macmillan Social Studies text One Plus One. Using the Academic talent, develop the concept of new citizens as in Chapter 11, pages 89-93.

Review the four Productive Thinking behaviors with the students.

TEACHER TALK: "Suppose we got a new citizen in our classroom. Use your Productive Thinking talent to list many, varied unusual things we could do to make our new citizen feel welcome. As you tell me your ideas, I will write them on the chart. Try to think of something no one else will think of."

STUDENT RESPONSE: As the teacher records on chart paper, students will respond orally with many, varied, unusual ways to make a new person feel welcome.

REINFORCEMENT: Praise relevant answers that reflect fluent, flexible, original thinking.

Grade 6
Communication #3
Academic: Science

POND - ERING

MOTIVATION:

This activity will be taught as a culminating activity on ecology.

Have the class take a field trip to the Environmental Center or some similar setting.

Following the field trip, review the Communication talent behavior #3 with the students.

TEACHER TALK:

"On our field trip, we noticed the sundew plant that grew very near the pond. We enjoyed watching it trap insects. The plant's leaves have hairs with a sticky substance enabling it to trap the insects. Use your Communication talent behavior #3 to think of and write many, varied things in your world that are adhesive like the hairy leaves of the sundew plant. Finish the sentence stem: The hairy leaves of the sundew plant are adhesive like _____. We will share your responses in ten minutes."

STUDENT RESPONSE:

Students individually write their many, varied comparisons.

REINFORCEMENT:

Praise students for their many, varied, relevant comparisons.

EXTENSION:

Have the students select their favorite comparison and illustrate it on art paper to be compiled into a class booklet or displayed on a bulletin board.

Professional Articles about Talents

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FEATURE

Creative and Critical Thinking: Not Just Enrichment

by Carol Schlichter
Tuscaloosa, Alabama

In many classrooms around the country, teaching for thinking is given more than a passing thought. Creative and critical thinking about topics of the elementary and secondary school curriculum are no longer relegated to the challenge or enrichment activities suggested by the teacher's guide. Instead, reflective thinking is the standard for students representing a wide range of abilities, interests, and needs. Consider the following classroom scenarios.

As a follow-up lesson to discussions and experiences regarding the different types of houses students live in, a first-grade teacher reads aloud Mary Ann Hoberman's *A House Is a House for Me*, which cleverly demonstrates many unusual ways one thing can be a house for something else (from "a hive is a house for a bee" to "a stocking's a house for a knee"). Using Hoberman's ideas as models of creative thinking, the teacher invites students to generate a list of many items that could be houses for something else.

To get the ball rolling, the teacher leads her students on a walking scavenger hunt around the classroom. She points to a bookshelf and says, *"I see something that is a house for something else. What do you see?"* The children are encouraged to state their ideas in Hoberman's pattern: a bookshelf is a house for books; an aquarium is a house for our fish; a book is a house for a story. The teacher selects objects that model a variety of possible ideas; in fact, she comments about these varied ideas aloud to students. Back at their desks, the children continue their search for ideas that fit the pattern. They are encouraged to think of new, different ideas and to think of ideas that others might not use. They come up with such imaginative ideas as an apple is a house for a worm; a stomach is a house for food; a watch is a house for time; and a head is a house for a headache. Later in the day, each student illustrates a favorite idea for a class book, *Many Things Are Houses*.

A group of fourth graders is becoming familiar with the way interdependent members of the food chain cycle matter and energy through the ecosystem. Their teacher asks how many of the students have heard of the artificial turf used on sports fields and in commercial landscapes. After briefly discussing their experiences with artificial turf and examining a sample, the teacher asks students this question: *"What if people were so pleased that this type of grass is always green, doesn't die, and doesn't have to be watered or mowed that all grass in our neighborhood were replaced by artificial turf? Predict many, varied possible effects of this situation."*

The students offer responses that reflect some scientific connection-making. They predict that cows and other animals would have to find something else green to eat and that erosion would be a major problem because artificial turf provides no roots to hold soil. In addition, some students make connections of another kind by suggesting that people wouldn't enjoy going barefoot, and there wouldn't be the odor of freshmown grass anymore.

In a seventh-grade math class, students are learning various methods of graphing data. They are to decide which graphing method would is the best way to present information they have gathered on topics of individual interest. They generate criteria questions, such as the following:

- Which graphing method presents the main ideas most clearly?
- Which method would provide an attractive visual display?
- Which method can illustrate the level of detail appropriate to my audience?

Using a decision-making matrix, each student weighs his/her alternatives with answers to the

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questions, makes a decision, and defends the choice with a variety of reasons before implementing the decision.

A high-school English teacher begins class by encouraging students to share aloud personal experiences in which they felt they were treated unfairly. All students have stories to tell and are actively involved in comparing and contrasting their experiences with those of their classmates. Following this sharing of personal experiences, the teacher skillfully guides students to connect their own experiences with those of a major character in *To Kill A Mockingbird*, which they now begin reading.

A special education teacher challenges students to discriminate among different types of angles with this assignment: *"Find examples of objects around your home and neighborhood that contain any of the three types of angles we have been studying— acute, right, and obtuse angles. Stretch your imagination and your eyes as you search for examples no one else will find."*

As students become increasingly sensitized to angles in their everyday world, their excitement about their own ideas increases. Follow-up projects are a natural culmination activity. Students may make pop-up books using magazine pictures of scenes in which various angles can be observed and labeled. Others may use black and white photography to make an alphabet book of unusual objects that contain either acute, right, or obtuse angles.

"Thinking skills instruction is embedded in the content of the discipline being taught."

Thinking Skills Instruction

All of the classrooms described above share some common features of effective instruction for thinking:

- *Explicit language for thinking is used* to guide students in using various types of thinking. For example, students using decision making are guided in identifying alternatives and criteria, in using a matrix for the weighing process and decision making, and in defending a final choice with a variety of reasons.
- *Thinking skills instruction is embedded in the content* of the discipline being taught. For example, students draw from their own experiences of discrimination to understand a similar theme in a novel they are reading.
- *The tasks require that students manipulate information/skills.* They must go beyond mere recall to solve problems, make applications, examine cause and effect, etc.
- *Students are actively engaged in* the learning process, constructing knowledge for themselves.

These features of thinking skills instruction are characteristics of good teaching appropriate for all students. Teaching that helps students understand specific operational components of different thinking processes is good teaching and results in improved thinking for any learner. Providing opportunities to think about concepts and issues in various disciplines increases opportunities for students to apply preferred thinking styles. This kind of interaction in instruction is as important for underachieving or unmotivated students as it is for students who are driven to achieve.

Instructional activities that place students in an active role and that require them to make

use of information/skills to solve problems, to consider different viewpoints, to examine underlying assumptions, and to envision new possibilities make learning more interesting and personal. No teacher would suggest that such outcomes should be limited to only a few students. No, teaching for creative and critical thinking is not just enrichment; it is good instruction for all students!

Talents Unlimited

The particular thinking skills approach used in each of the above classroom scenarios is Talents Unlimited (Schlichter & Palmer, 1993), a staff development model for helping teachers identify and nurture students' multiple thinking talents. Talents Unlimited (TU) is based on specific definitions of 22 thinking skills in the talent areas of productive thinking, decision making, planning, forecasting, and communication. The theoretical and research background for Talents Unlimited grew out of the work of Calvin W. Taylor (1968) and J. P. Guilford (1956), who have explored the multi-dimensional nature of human intelligence for many years. This theoretical framework is consistent with more contemporary interpretations of multiple intelligences, such as those of Gardner (1993) and Sternberg (1984). The pragmatic support for Talents Unlimited draws on the value of creative and critical thinking skills as a major component of the adaptive behavior necessary for individual independence, flexibility, and self-sufficiency in a time of unprecedented change.

A major strength of the Talents Unlimited model is its effectiveness with groups of students diverse in intellectual ability and achievement, socioeconomic level, and interests. Groups of students often referred to as slow learners as well as gifted students were included in the population of the original research. Students in rural areas as well as students from minority groups were represented in the study. Numerous successful adoptions of Talents Unlimited in sites representing all areas of the United States and several foreign countries attest to the validity of this program in enhancing the development of multiple thinking talents of students with diverse backgrounds and abilities (Chissom & McLean, 1993).

Productive Thinking

In the first-grade scenario, students used four well-documented creative thinking skills:

- fluency—many ideas
- flexibility—varied ideas or ideas reflecting a mental shift
- originality—unusual ideas, something few others would think of
- elaboration—adding to ideas to make them more interesting

The operational procedures for thinking productively do not change from grade to grade, but the content into which lessons are integrated reflects the developing sophistication of the curriculum at varying grade levels and for varying audiences and purposes. While the first graders used productive thinking to expand their concept of house, students in other grades apply these same skills in different contexts.

- Fifth graders studying the American Revolutionary War are encouraged to generate ways the early American colonists could have expressed their discontent with British rule. In a follow-up task, they classify their list of alternative responses as either violent or nonviolent methods and evaluate them in the context of the historical period.
- In a high-school technical preparation business course, students studying marketing techniques develop many examples of customer services they would offer if they owned a John Deere dealership. These responses are later compared to marketing ideas generated inside the factory,

providing students with both external and internal viewpoints on customer services.

Forecasting

The central focus of the forecasting talent cluster is making a variety of predictions about the possible causes and/or effects of various phenomena. In the fourth-grade classroom described earlier, students envisioned a future in which artificial turf replaced all grass by thinking of the possible effects or consequences. The follow-up discussion included efforts to verify predictions. Students used what they had been learning about food chains and their functions to provide evidence about why a particular effect was more or less likely to occur. Their think-aloud efforts provided the teacher with a good indication of the students' level of understanding regarding the academic objectives. In addition, the discussion also generated new knowledge/understanding for some students as their peers articulated connections some had not yet made. Other examples of the application for forecasting follow.

• In an introductory activity for the study of *Romeo and Juliet*, students are asked to predict causes for a parent to forbid a relationship. Their responses are examined against the backdrop of a similar issue in a different time and serve in making the literary selection more personal.

• The practical importance of fractions is made immediately real to an elementary group asked to predict the consequences if stores allowed them to purchase only in whole units and omitted fractional parts of units.

While an obvious advantage of such strategies is to stimulate analytic thinking by helping students examine and manipulate their knowledge base through connection making, there is another important benefit of forecasting skills. This kind of inferential thinking can help students avoid simplistic, pigeonholed thinking.

"This kind of inferential thinking can help students avoid simplistic, pigeonholed thinking."

Decision Making

Decision making talent assists students in outlining, weighing, making final judgments, and defending a decision on the alternatives to a problem. In the math class described earlier, students made choices among graphing methods limited to those presented in class. The decision-making process was invigorated because their choices were based on graphing criteria that matched the students' interests. Such a process empowers students by giving them some control over their learning, regardless of age level or discipline being investigated.

• First graders preparing for an Earth Day poster contest generate choices for poster topics (e.g., littering, car pooling). Their considerable experience in using the skills of decision making serves them in developing some of their own criteria (Can I draw this? Is this a good message? Is this idea something I want to do to help save the earth?) and in making defensible decisions on which they will later act.

• A high-school computer class uses decision making to generate, evaluate, and decide on the

best spreadsheet design for calculating their class average.

Communication

The high-school English teacher in the earlier scenario used a communication skill to help students develop a base for expressing empathy for a character in a novel. No matter which of the six skills defined in the communication talent may be employed, a central objective is to increase students' facility with both verbal and nonverbal language through emphasis on variety, clarity, and richness of expression.

- A social studies unit on Egypt provides third graders with opportunities to learn about the builders and building of the pyramids. To help them focus their ideas about the necessary characteristics of workers who built the pyramids, students pretend they are in charge of hiring a crew to construct a pyramid. They list single words to describe the kind of pyramid builders they want to hire. In a follow-up task, also employing a communication skill, they incorporate some of their describing words in a newspaper ad about pyramid builders.
- The importance of using written language in science is demonstrated in a biology class, following a study of the circulatory system. Students imagine they have been shrunk and injected into a vein of a frog. They compose a network of ideas in the form of an "on the scene" report to trace their flow through the frog's circulatory system, comparing it to their own circulatory system.

Planning

The planning talent skills are a natural link to decision making and emphasize designing a way to implement an idea. Planning involves describing what is to be done (the objective), identifying the resources needed, outlining a sequence of steps, pinpointing possible problems, and making changes to improve the plan. While none of the classroom scenarios highlighted the planning talent, it was the thinking talent of choice to follow the math students' decision about the best graphing method to display their data. Making the decision does not guarantee effective implementation; thus, these students moved from decision making to planning a way to com- plete their graphing project. Feedback from peers and teacher enhanced the improvement aspect of planning, which is so critical to successful implementation. Other examples of planning include the following:

- Fifth graders detail a plan for making a large chart to show similarities and differences of the three geographic groups of early American colonies.
- Second graders plan (and later test) pinwheels as part of an energy unit.
- Ninth graders in an earth science class plan a school landscaping model to encourage the presence of butterflies.

Talents Unlimited has been widely adopted by school districts to enhance the creative and critical thinking of *all* students. Staff development models for both the elementary grades (Talents Unlimited, Inc.) and the secondary grades (Talents Unlimited to the Secondary Power) are monitored and evaluated by headquarters staff and guide the training of teachers by certified Talents trainers (Schlichter, 1986). Evidence from evaluation studies demonstrates the effectiveness of providing thinking skills instruction for students diverse in ability, interests, and learning styles. ■

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FEATURE

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Talents Unlimited: An Inservice Education Model for Teaching Thinking Skills

Carol L. Schlichter
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Abstract

The Talents Unlimited project is an effective inservice education model for training both regular classroom teachers and specialists in gifted education in the development of students' creative and critical thinking skills. Four categories of training activities which comprise this model closely approximate the components which inservice research suggests are critical in helping teachers master new instructional approaches: Presentation of theory or description of strategy; modeling of skills; practice in simulated and classroom settings; feedback about performance; and coaching for application of skills to the classroom. The effectiveness of the Talents Unlimited model in enhancing teacher skills in the identification and instruction of students with varying backgrounds and diverse abilities is discussed.

Introduction

Increasing attention to the lifelong process of learning for both teachers and students is reflected in the rhetoric and research of professional literature of the past five to ten years. Inservice education and staff development were themes of publications including *Educational Leadership* (February, 1980; October, 1982), *Phi Delta Kappan* (February, 1982), *Theory into Practice* (Autumn, 1980), and *Roeper Review* (September, 1983). A brief summary of some of the critical issues in research on inservice education is provided in the following section. This information can serve as a backdrop for the description of the Talents Unlimited inservice model for the teaching of thinking.

Inservice Training

In an extensive review of 200 research studies on teacher training, Joyce and Showers (1980) identified three general findings about the ability of teachers to acquire teaching skills and strategies: 1) nearly all teachers can be successful in learning new teaching strategies; 2) certain conditions are necessary for the improvement of teaching, conditions not common in most inservice settings; and 3) research is available to give direction in designing staff development activities which address these necessary conditions. This review of teacher training research included attention both to improving or "tuning" present skills and to learning new skills or strategies.

A major focus of the Joyce and Showers review was an analysis of how various components of teacher training contribute to learning. The five major components identified in the review were: 1) presentation of theory or description of skill or strategy; 2) modeling or demonstration of skills or models of teaching; 3) practice in simulated and classroom settings; 4) structured and open-ended feedback about performance; and 5) coaching for application or transfer of skills to the classroom.

Presentation of theory — the rationale, theoretical base, and verbal description of an approach to teaching of a skill or technique — was not, by itself, the training strategy in any study but was frequently combined with one or more other components. The evidence from such research suggested that presentation of theory can raise awareness of an approach or skill but its greatest impact is made when it is used in combination with other training components, such as modeling or demonstration of skills. Similarly, none of the studies reviewed used practice alone as the treatment, but many demonstrated the effectiveness of this component in combination with prior awareness and knowledge of strategies and skills.

The evidence for the modeling and feedback components is the clearest in the analysis done by Joyce and Showers (1980). Modeling involves demonstrating the teaching skill or strategy with children or adults or through some form of media. Feedback includes both structured feedback, which involves learning a system for observing teaching behavior and providing opportunity for reflection on that teaching, and unstructured feedback consisting of informal discussion following observation. Joyce and Showers' analysis indicated that the use of modeling alone can produce some improvement in teaching where tuning of style is involved; however, for the mastery of new approaches, modeling must be accompanied by other components. Review of studies on feedback revealed that structured feedback has positive impact on awareness of teaching behavior and knowledge about alternatives. Open-ended feedback has uneven impact and may be used best as an awareness activity for more directed training activities.

Coaching for application involves helping teachers analyze content to be taught and processes to be used or approaches to be taken, as well as using goal-setting and specific planning to help the teacher incorporate the new teaching approach in the classroom. Although few studies focused on this component of training as defined by Joyce and Showers (1982), several treatments which involved lengthy follow-up feedback and goal-setting suggested the positive impact of coaching in this analysis of inservice training.

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Joyce and Showers concluded that inservice activities, especially those directed toward mastery of a new approach, are more likely to have maximum effectiveness if they include all five components of training. The combination of presentation of theory, modeling or demonstration, practice, feedback, and coaching has the greatest impact in helping teachers progress to the transfer level, the level which has the most meaning for school improvement.

The Talents Unlimited Inservice Education Model

Talents Unlimited is an innovative educational program developed under a Title III Elementary and Secondary Education Act grant in Mobile, Alabama, in 1971. This project represents a classroom level, research-based implementation of the multiple talent approach to teaching defined by Calvin Taylor (1967) and linked to Guilford's (1956) research on the nature of intelligence. The multiple talent approach to teaching is a system for helping teachers identify and nurture youngsters' multiple talents in productive thinking, forecasting, communication, planning, decision making, and academics. In this approach, traditional academic talent helps students gain knowledge in a variety of disciplines, while the other thinking skills clusters assist students in processing or using the knowledge to create new solutions to problems (see Table 1).

The overall goal of the Talents Unlimited (TU) project is to design and implement a developmental program of activities which would help teachers to gain and maintain the necessary knowledge, skills, and attitudes for successfully implementing the multiple talent approach to teaching in their classrooms. The major objectives of the TU project are directed toward the development of a three-faceted model which includes: 1) the training of teachers in the recognition and nurturing of students' multiple thinking abilities; 2) the development of materials to support the integration of the thinking processes into the regular curricula of the classroom; and 3) the enhancement of student performance in the multiple talent skills, including academic achievement, in creative thinking, and in self-concept.

The success of this project in effecting change in students' use of a variety of thinking skills and in their attitudes about themselves has been described in detail elsewhere (Chissom & McLean, 1980; McLean & Chissom, 1980; Schlichter, in press). This article focuses on a description of the inservice education model and uses of the TU model in regular education and in gifted education programs.

Table 1
Description of the Talents Unlimited Model

Talent Areas	Definition	Sample Activity
Productive Thinking	To generate many, varied and unusual ideas or solutions and to add detail to the ideas to improve or make them more interesting.	Students working in a math unit on surveying and graphing are asked to think of a variety of unusual topics for a survey they will conduct and graph during the day.
Decision Making	To outline, weigh, make final judgments, and defend a decision on the many alternatives to a problem.	Students who are preparing to order materials through the Scholastic Books campaign are assisted in making final selections by weighing alternatives with such criteria as cost, interest, reading level, etc.
Planning	To design a means for implementing an idea by describing what is to be done, identifying the resources needed, outlining a sequence of steps to take, and pinpointing possible problems in the plan.	Students who are studying the unusual characteristics of slime mold are asked to design experiments to answer questions they have generated about the behavior of the mold.
Forecasting	To make a variety of predictions about the possible causes and/or effects of various phenomena.	Students who are conducting a parent poll on their school's dress code are encouraged to generate predictions about the possible causes for low returns on the survey.
Communication	To use and interpret both verbal and nonverbal forms of communication to express ideas, feelings, and needs to others.	Fifth graders studying the American Revolution role-play reactions of both Loyalists and Rebels, as they hear the reading of the Declaration of Independence, in an attempt to describe the different emotions of these groups of colonists.
Academic	To develop a base of knowledge and/or skill about a topic or issue through acquisition of information and concepts.	Students read from a variety of resources to gain information about the Impressionist period and then share the information in a discussion of a painting by Monet.

Talents Unlimited in Regular Education

From its inception the TU project was intended to focus on teacher training, as the teacher was perceived to be the key person in student talent development. Thirty-seven regular teachers representing grades one through six participated as "talents" teachers for the three-year period of research. The project teachers were from four experimental schools with highly diverse student populations. These teachers represented different levels of professional competency and attitude, as judged by administrative and supervisory staff, and varied widely in teaching experience (0-44 years) and age (22-68 years). Approximately 40% of the participating teachers were black and 60% were white. Needs assessment data established that the teachers had no prior training in areas related to the specific focus of the project.

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The Talents Unlimited inservice model was designed originally as a competency-based training program for the development of knowledge, skills, and attitudes necessary for the successful implementation of the multiple talent approach to teaching. A hierarchy of skills was identified to guide the implementation and evaluation of training activities. Four major categories of activities and strategies employed in the training were summarized in the TU validation report (1974): 1) input sessions on multiple talent theory and talent skills definitions; 2) modeling and demonstration; 3) classroom practice sessions; and 4) one-to-one and small group planning sessions. These four categories of training activities closely approximate the training components of inservice education analyzed by Joyce and Showers (1980).

Presentation of Theory

TU inservice training begins with awareness sessions designed to inform teachers about multiple talent theory and research on human intelligence which underlie the rationale for development of a broad range of thinking abilities. In addition, teachers are introduced to descriptions of the six talent clusters comprising the multiple talent approach to teaching (Taylor, 1967). Classroom examples of each talent are shared with teachers and audience participation is invited for selected examples. Three-year research results on the TU project are described and handout materials, including a summary sheet on the multiple talent rationale, a description of the talent clusters, and a bibliography of related readings, are provided to teachers at the end of these input sessions.

A project-designed instrument, "The Talent Reactor," provides for the assessment of comprehension of basic talent theory and research and an indication of teacher attitude regarding talent development. In the initial research period, pre- and post-test data collected for each participating teacher demonstrated that minimum performance standards (75% accuracy on theory base and 90% positive responses on attitude scale) were met and exceeded. In subsequent adoptions of the TU model, this instrument often is used by teachers as a self-evaluation tool.

Teacher comprehension of the multiple talent approach to teaching and its underlying rationale goes beyond the obvious goal of helping teachers understand why they are employing this method and what they might expect as a result. The value of this training component can be viewed best in the context of one of the classroom instructional goals: teaching students the multiple talent model. Helping students understand at a conscious level what the talent training program is about is a deliberate attempt to encourage students to share the ownership for their personal talent development. Further, the development of a clear understanding about the multiple talent approach on the teacher's part facilitates communication with parents and the diffusion of information to colleagues in the school.

Modeling or Demonstration

Additional inservice training sessions focus on the demonstration of teaching skills specific to each cluster of thinking skills in the multiple talent model. The setting for these activities varies. Some demonstrations are provided in workshop groups and employ a small group of students; other demonstrations in a workshop setting are implemented through role playing with adults or through the use of videotapes of talent teaching. Demonstrations in a teacher's classroom are another method of implementing this component.

Five key instructional skills are the targets of these modeling and demonstration sessions: 1) giving directions or asking questions which contain specific cues for the cognitive tasks the student is to perform; 2) providing time for students to respond; 3) accepting/rewarding students' ideas and building upon their ideas; 4) modeling the thinking skills for students; and 5) developing materials to integrate skills instruction into all subject areas.

Practice

In the TU inservice model, teachers develop skills in writing and critiquing talent activities, in implementing and evaluating talent instruction with students and in evaluating student response to instructional activities. Structured observational feedback is provided to teachers; in addition, peer feedback and self-evaluation techniques are employed.

"The Talent Reactor" instrument is used to assess some aspects of skill in writing and evaluating instructional activities, but the primary method for evaluating practice centers on the variables in the Teacher Self-Rating Scale. An important factor in the TU inservice model is that feedback on practice is given at regular intervals over a considerable length of time. In the original research project, teachers participated in combined practice and feedback sessions with trainers approximately once a month for three years. Additional practice and feedback sessions were implemented with peers and supervising principals who were trained in the multiple talent model. The continued use of the TU thinking skills model by project teachers after the research ended was strong evidence of maintenance of learned skills.

Teachers who participated in the original TU research met or exceeded all minimum performance standards for the practice component, including number of activities taught ($\bar{x}$ = 66.8 where 50 was minimum), appropriate use of instructional variables ($\bar{x}$ = 8.7 on 9.0 scale where 7.5 was minimum standard), integration of talent skills with curricula ($\bar{x}$ = 2.5 on 3.0 scale where 2.0 was minimum standard), and accurate evaluation of student development ($\bar{x}$ = 4.0 in one talent, 3.5 in four other talents on 5.0 scale). Although these measures of teachers' successes in implementing the TU thinking skills model are notable, a second set of supportive data was even more significant: student performance on project-developed measures of thinking skills

(*Criterion Referenced Tests of Talents*, 1974), academic achievement, creativity, and self-concept.

Planning and Follow-Through Activity

This component of the TU inservice model provides a sense of the commitment to excellence which guides implementation efforts. Activities which define this component focus on efforts to address the nitty-gritty, day-to-day questions, problems, and challenges normally experienced by teachers engaged in instructional innovation.

Planning activities are largely individual in nature because the focus is on helping each teacher find the best fit for the new strategies in the classroom. Topics such as adapting talent instruction to students of varying ability and integrating skill development in all subject areas were frequent targets of these planning activities.

The validation of the TU project and its membership in the National Diffusion Network are based on results from the initial research with students in grades one through six. Some of the subsequent adoptions included secondary students. There is ample evidence that the thinking skills instruction based on the TU model is applicable with students K-12.

Talents Unlimited in Gifted Education

The basic inservice model for training teachers to use the TU thinking skills program is appropriate for both regular educators and specialists in gifted education when the goal is to enhance the creative and critical thinking of students. While the initial research on the TU program was conducted with heterogeneous groups of students in the mainstream and the resulting data did not address specific questions concerning the effectiveness of the model with gifted students, a subsequent replication study using gifted students produced significant results for all talents (Chissom & McLean, 1980). In addition, initial results from research now in progress confirm the usefulness of the TU model in identification and instruction of gifted students. Taken together, these data give some direction in suggesting implications for gifted education in both regular classroom enrichment and instruction in special programs. The following sections highlight several applications with gifted students by teachers trained in the TU model.

Identification and Classroom Enrichment

Research in progress indicates that teacher training in the use of the Talents Unlimited model may be an important step toward more effective teacher referral of youngsters with different kinds of outstanding abilities. The use of talent assessment data on individual students may go a long way in reducing the bias of teachers in referring as gifted only those students with high scores on intelligence/achievement tests. In addition, the systematic use of this model may lead to greater identification of minority and/or disadvantaged gifted youngsters. In the Talents Unlimited research, successes in student talent development were as well represented in the predominantly rural and black experimental schools as in the predominantly urban and white middle-class experimental schools (Chissom & McLean, 1980).

Teachers of the Talents Unlimited model are trained to provide systematic opportunities for all youngsters in a class to develop potential in all talent areas and especially in the one or more talents identified as a student's particular strengths. Often these group activities stimulate possibilities for bright youngsters to pursue an idea or project further, as well as provide opportunities for training in specific cognitive and affective skills.

Talents Instruction in Special Programs for the Gifted

Talents Unlimited can be implemented as a support system in assisting gifted students as they conduct investigations of problems of interest to them. Teachers of the gifted who are trained in the TU model can use the multiple talent skills as a strategy for helping these students focus an interest, define the interest in terms of a problem, and move through a process of solving the problem in a manner appropriate to students' interests and abilities.

The talents model can also be used in the development and management of an overall plan for an independent project. Trained teachers use the various talent skills to assist students in identifying resources and describing project procedures, in generating and evaluating the products and outlets for projects, and in analyzing and revising the project on a day-to-day basis. In addition, the talent skills can be focused to assist students in developing specific methodological skills needed to pursue an investigation.

Summary

The multiple talent approach, as defined in the Talents Unlimited model, provides the basis for an inservice education program to train both regular classroom teachers and specialists in gifted education in the development of students' critical and creative thinking skills. The four categories of training activities which comprise the TU project closely approximate the components which inservice research suggests are critical in helping teachers master new instructional approaches.

Implementation of the TU model can enhance identification of students with high potential in a wide range of abilities and can provide the basis for enrichment in areas of student talent strengths. In addition, the skills of the TU model can be used to assist gifted students in the development and management of independent projects.

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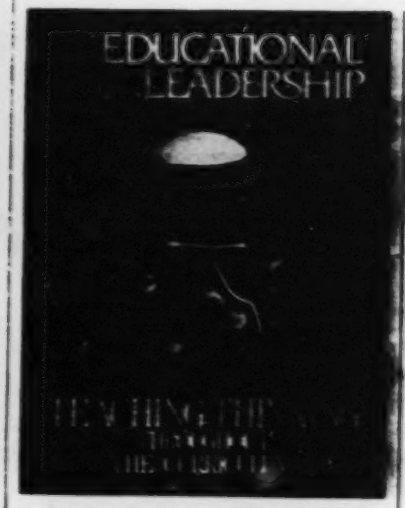

In this issue, perennial questions about the teaching of thinking appear as usual, an array of answers offers illumination about what schools are doing to teach thinking in all areas of the curriculum. Photograph by Dennis Johnson. Design by Al Way.

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Talents Unlimited: One School's Success Story

Participation and motivation are no problem when teachers teach thinking with Talents Unlimited activities.

"We are planning a wedding between Mr. Q and Ms. L," a 5-year-old excitedly explains to a visitor at Westover Elementary Magnet School (Stamford, Connecticut). He points to a bulletin board which shows the four parts of the plan. "First we told about our plan," he says. "Then we thought of all the things we would need for our wedding." Under the heading, "Things Needed for the Wedding," the class has listed *something to eat, tablecloth, cake, tuxedo, flowers, veil, presents, music, judge, man to be Q, woman to be L*, and *bathroom (just in case)*.

Then we had to think of what we were going to do," the 5-year-old explains further, "and then put everything in the right place." The third heading on the bulletin board, "Steps in our Plan," includes the following: *send out invitations, buy a cake and juice, get stereo*, and *get married*.

The enthusiastic youngster goes on. "Before we could have the wedding, we had to think of problems that might spoil our plan." Again, the bulletin board reflects concerns of the class: *people might cause trouble by being too noisy, bride and groom might be late, judge might be absent*, and *people might spill the cake*.

As a result of this engaging lesson, there is a good chance these 5- and 6-year-olds will remember the *Q-L* relationship because the process used to plan the wedding required the youngsters to interact actively with the subject matter they were expected to remember. Such lessons occur with the same regularity at Westover School as do skills drills and morning exercises.

This exciting kind of learning results from a teacher training program called Talents Unlimited. "Talents," as it is familiarly known, focuses on critical and creative thinking, invites children to become active learners rather than passive receivers, and enables teachers to function as facilitators of learning rather than disseminators of information. Talents Unlimited proponents believe that nurturing children's abilities in the areas of productive thinking, communication, forecasting, decision making, and planning will improve their academic performance along with their chances for future success.

These youngsters learned much more than the letter sound association on the board from a plan a classroom event.

Since its inception at Westover in 1981, Talents Unlimited has worked to the satisfaction of teachers, parents, and students. Teachers plan 50–100 lessons each year to enhance children's thinking abilities, as children from kindergarten through 6th grade engage in daily activities during which they compare, design, predict, categorize, classify, invent, and communicate.

Results are encouraging: test scores exceed expectations at Westover, and student attendance is well above average. The children demonstrate enthusiasm for thinking critically and creatively and for participation in Talents lessons. Both students and teachers take pleasure in telling visitors about their work, exhibiting pride in their accomplishments. The reason for Talents Unlimited's success is simple—it works. Ask anyone at Westover School.□

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CAROL L. SCHLICHTER, DEBORAH HOBBS, AND W. DONALD CRUMP

Extending Talents Unlimited to Secondary Schools

School districts in Alabama, Arkansas, and New Mexico are finding Talents Unlimited an effective model for teaching thinking in secondary classrooms.

Talents Unlimited—a research-based model for teaching thinking that has proven effective at the elementary level for 14 years—is now being used with success in secondary schools. The backbone of the model is instruction in 19 thinking skills in the five "talent" areas of productive thinking, decision making, planning, forecasting, and communication, in addition to the basic academic skills (see fig. 1). A detailed staff development model guides implementation of the instructional program. The program emphasizes specific strategies that help classroom teachers integrate practice in thinking skills with the academic content of the disciplines they teach (Schlichter 1986). Underlying this approach to thinking skills instruction are the following assumptions:

1. People have talents (strengths or preferences) for different thinking processes.

2. Training in the use of these thinking processes can enhance one's potential in various areas of talent and at the same time foster positive feelings about oneself.

3. Training in particular thinking processes can be integrated with knowledge or content in any subject area and can enhance academic achievement.

"A detailed staff development model guides implementation of the instructional program."

4. The various thinking processes are also linked to success in the world of work (Taylor 1967).

Here we describe successful implementation of Talents Unlimited at the secondary level in three locations throughout the country. (See "Talents Unlimited: One School's Success Story," Edmund Barbieri, p. 35, for a description of Talents Unlimited in elementary school.)

In Las Cruces, New Mexico

One of the first districts to recognize the importance of Talents Unlimited as a model for thinking skills instruction in secondary classrooms was the Las Cruces, New Mexico, school system. The district had used the model successfully in several elementary schools for three years. As students from these schools moved to junior high, their teachers began to notice that the Talents-trained students more frequently raised questions in class discussions, more often suggested other ways of looking at issues, and more consistently exhibited self-initiated learning than did other students. Impressed by these students, secondary teachers re-

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quested and received training in Talents Unlimited. The following thinking skills lessons illustrate teachers' use of the Talents model in extending students' academic knowledge.

An English teacher used a hypothetical planning activity to help 9th graders studying *Romeo and Juliet* to be more aware of the subtlety and complexity of relationships between the feuding families. After reading the play and discussing central issues, the students were asked to design a plan to convince Juliet's parents that Romeo was a suitable mate. The teacher conducted the planning activity orally so that discussion could flow continually during the process. Half the class did the actual planning aloud and recorded the process on the chalkboard for all to see. The other half of the class, who had heard the interaction as the plan developed, evaluated the plan. Their comments served as take-off points for discussion and sometimes as the basis for modifying the plan when the planners determined that the changes were an improvement. The teacher found this planning exercise to be a highly stimulating way to engage students in using their own ideas to elaborate the finer points of a piece of literature.

Instruction based on the Talents model was evident in other subject areas, too.

- Students used productive thinking to apply academic concepts when their calculus teacher asked them to generate a variety of problems in which someone might want to find maximum or minimum quantities.
- In a remedial language lab, a canned exercise on using prepositional phrases was replaced by students' own inventive phrases to complete such sentences as, "A busy squirrel could scamper _____." Sample responses generated through productive thinking included: *around an oak tree*, *under a pile of grass clippings*, *between the legs of a passing jogger*, and *into a discarded Nike*.
- In a 7th grade life science class, students used communication skills to produce separate lists of single words to describe various biomes. They then used the lists to compare and contrast the biomes under study.
- In social studies classes, students practiced their forecasting skills, for example, by predicting causes for the growth of the labor movement and for the legislation of child labor laws. They also considered the consequences if czars had not been abolished in Russia and if advertisers were not restricted by truth-in-advertising laws. Forecasting questions help students avoid simplistic, pigeonholed thinking and examine the connections among historic events that result from students' inferential thinking.

These and other innovative lessons that integrate thinking skills instruction directly with academic content are available in *Talents Unlimited for Secondary Classrooms* (Votaw and Wyszkowski 1984).

In Benton, Arkansas

In Benton, Arkansas, a project funded through the Winthrop Rockefeller Foundation during 1985–88 provides for the training of all secondary teachers in the Talents Unlimited model. Teachers are learning to develop activities to integrate all 19 thinking skills with academic units of instruction in all subject areas.

Initially, teachers found that some thinking skills are more easily integrated into certain subject areas than others. For example, 12th grade English teachers readily developed the following decision-making activity for a literature class that had just completed study of *Oedipus* and was beginning *Canterbury Tales*:

> Think about the characteristics of the tragic hero we discussed in our study of *Oedipus*, and apply those concepts to the Canterbury Pilgrims. Decide which member of the pilgrimage would make the best tragic hero if the circumstances were right. (Possible clues: Does the description of the characters in the Prologue suggest a tragic situation? Is this character admirable to the other characters? Is there something about this character that suggests the possibility of a fall?) Defend your decision with many, varied reasons.

An 8th grade science teacher also easily identified a target question for forecasting to help astronomy students distinguish the earth's rotation from its

"The backbone of the model is instruction in 19 thinking skills in the five 'talent' areas of productive thinking, decision making, planning, forecasting, and communication, in addition to the basic academic skills."

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"In social studies classes, students practiced their forecasting skills, for example, by . . . [considering] the consequences if czars had not been abolished in Russia and if advertisers were not restricted by truth-in-advertising laws."

Talent Areas	Definition	Sample Activity
Productive Thinking	To generate many varied and unusual ideas or solutions and to add detail to the ideas to improve or make them more interesting.	In a composition class, students generate a variety of clever ways the element of surprise could be used to create interest in a given story situation.
Decision Making	To outline, weigh, make final judgments, and defend a decision on the many alternatives to a problem.	On the basis of research on various American presidents, students present cases for "the ideal president" using such criteria as education, experience, magnitude of events during presidency, impact of media, handling of crises, etc.
Planning	To design a means for implementing an idea by describing what is to be done, identifying the resources needed, outlining a sequence of steps to take, and pinpointing possible problems in the plan.	Students who are studying the unusual characteristics of slime mold are asked to design experiments to answer questions they have generated about the behavior of the mold.
Forecasting	To make a variety of predictions about the possible causes and/or effects of various phenomena.	Students in a business math class are asked to predict the possible consequences if a company did not prepare departmental margin statements.
Communication	To use and interpret both verbal and nonverbal forms of communication to express ideas, feelings, and needs to others.	Students in a biology lab are given practice in writing reports of experiments by expressing in varied and interesting ways all the statements that could be made on the basis of a completed chart of data on traits observed in sets of cell specimens.
Academic	To develop a base of knowledge and/or skill about a topic or an issue through acquisition of information and concepts.	Students read from a variety of resources to gain information about the Impressionist period and then share the information in a discussion of a painting by Monet.

Fig. 1. The Talents Unlimited Model

revolution and to consider the importance of each phenomenon to life on earth:

> What are all the possible effects upon life on earth if our planet suddenly stopped spinning on its axis but continued to revolve around the sun?

The mathematics curriculum often proves to be the most challenging content for employing all the thinking skills, but even this more structured discipline did not elude the teachers of Benton. Consider the following decision-making lesson on factoring in an algebra class. Students are given a polynomial to factor and asked to decide which factoring method would be best. Students weigh the various methods they have learned in previous classwork and any variations they may develop through discussion of criteria questions they generate: How many terms does the polynomial have? What is the degree of the polynomial? Does the polynomial contain terms that are perfect squares? Is the constant positive or negative? Decisions are defended, and the application of solutions to the problem begins. This use of evaluative thinking is only one of the strategies teachers believe can help students be more reflective in their mathematics problem solving.

Another important component of the Benton project is a strategy for follow-through on implementation that takes into account the turnover in school faculties. Several teachers, representing each major discipline, volunteered to become local Talents Unlimited trainers. They received additional inservice training in order to work with new faculty members, and they will assist in the continuing development of instructional materials to integrate thinking skills into the curriculum.

In Vestavia Hills, Alabama

A K-12 adoption of the Talents Unlimited model was the response of the Vestavia Hills, Alabama, schools to a state plan for excellence which calls for the teaching of creative and critical thinking skills to all students, not just to academically gifted students. Grades

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"In a remedial language lab, a canned exercise on using prepositional phrases was replaced by students' own inventive phrases . . . generated through productive thinking."

6–12 were part of a special two-year study, since prior research on the model was limited primarily to the elementary grades. Training was provided to regular classroom teachers, special education teachers, librarians, counselors, and administrative staff. The aspects of the training that teachers found most helpful were: the concrete examples of ways to implement Talents training in various subject areas; the emphasis on the need for creative ideas which need not be evaluated as right or wrong; phrasing questions specifically to elicit different kinds of thinking from students; guidance in developing specific thinking skills lessons; and extending concepts beyond the textbook. Teachers consistently expressed a desire for more scheduled time to work with other teachers in developing and writing thinking skills activities. This need was addressed, to some extent, by coaching sessions, which are a part of the comprehensive Talents Unlimited staff development model.

Middle school teams (all teachers at a grade level) used some of their planning periods to work out strategies for ensuring that students received regular guided practice in all thinking skills. At the high school level, a Talents trainer provided direction, sometimes during departmental planning sessions at which teachers brainstormed questions and activities that would target specific thinking skills in a particular academic discipline. The planning task shown in Figure 2 illustrates the creativity of teachers in using thinking skills instruction.

Your group task is to design a reelection campaign for Theodore Roosevelt in 1912, which will be the basis for a class presentation. Your campaign plan must include the use of a slogan(s), a song, posters/campaign literature, and a nominating speech to be given to the Progressive Party convention. This worksheet is to assist your group in identifying all the tasks and resources, including a timeline for development, needed for the presentation of your campaign in class on _____ (date).

1. State the major theme/platform/strategy for the reelection campaign.

2. Identify all the resources you will need in the development and presentation of your campaign.

3. List a sequence of steps for the development and presentation of your campaign, including a timeline and the identification of specific group member responsibility for each step.

4. Identify problems you may encounter with the development and presentation of your campaign plan.

Fig. 2. Planning a Campaign (Worksheet)

Teachers kept monthly logs documenting planned, guided practice for students in the thinking skills. At regular intervals, they compiled their lesson ideas and shared them with colleagues. Results from careful analysis of the logs indicated that middle school and high school teachers averaged approximately one planned thinking skills lesson per week in a specific course. Thus, in the middle school, where students are clustered by grade level for their academic classes, each student had three to four opportunities a week to engage in thinking skills activities. In the high school, where individual student

"The [Talents Unlimited] program emphasizes specific strategies that help classroom teachers integrate practice in thinking skills with the academic content of the disciplines they teach."

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An Overview of Talents Unlimited

Edmund L. Barbieri

In 1927, C. Spearman proposed that intelligence is essentially defined by a general or "g" factor that permeates performance on all tasks of intelligence. L. L. Thurstone, who broke away from Spearman's "g" theory, hypothesized that the intellect is made up of a number of diverse "primary mental abilities." Using factor analysis, he proposed that intelligence comprises roughly seven abilities: verbal comprehension, verbal fluency, number, spacial visualization, memory, reasoning, and perceptual speed. Continuing in Thurstone's tradition, J. P. Guilford developed his three-dimensional "structure of the intellect." Guilford at first posited 120 mental factors and more recently increased these factors to 150.

Calvin Taylor, working with Thurstone, completed his dissertation, *Fluency in Writing*, in 1947. His was the first factor analytic study to go beyond answer sheet-only responses. He introduced two new factors: ideational fluency and expressional fluency. Later Taylor isolated nearly 40 verbal communication abilities.

Unlike Guilford, Taylor shied away from complexity and looked for a simpler model of intelligence. Taylor chose to focus on five major abilities, or talents, in addition to academic ability. The five talents—productive thinking, communication, forecasting, decision making, and planning—are viewed as vehicles to assist students in using knowledge (i.e., academic talent) to create new solutions to problems.

In 1971, Taylor's theories were put into practice by a group of teachers headed by Carol Schlicter in the Mobile (Alabama) County Public Schools. The Talents Unlimited program was developed in Mobile with funds from the Elementary and Secondary Education Act (ESEA) and field-tested from June 1971–June 1974. The project was nationally validated and is now one of the most widely disseminated programs within the U.S. Government's National Diffusion Network. The Talents Unlimited national headquarters is located in Mobile, now under the direction of Deborah Hobbs.

Talents Unlimited proponents believe that by nurturing students' abilities in the five Talent areas, their academic proficiencies will improve along with chances for future success. Brief explanations of the Talents follow:

1. *Productive thinking* is the ability to generate many, varied, and unusual ideas and then to add on to those ideas to improve them.
2. *Communication* is the ability to convey needs, feelings, and ideas effectively to others. The related skills of communication are: description, comparison, empathy, nonverbal communication, and the networking of ideas.
3. *Forecasting* is looking into the future to predict things that might happen or looking into the past to consider what might have happened. Forecasting involves predicting both cause and effect relationships.
4. *Decision making* is a factor in everyone's life. Some decisions are of a split-second nature, while others are long range. Four steps are helpful in training students to make good decisions:
   - Have them think of many possible things they could do.
   - Ask them to think more carefully about each of these things.
   - Let them choose one.
   - Have them give many, varied reasons for their choices.
5. Effective *planning* involves:
   - deciding what is going to be planned,
   - listing all the resources needed,
   - telling, in order, the steps taken to complete the plan,
   - describing any problems that might come up during implementation.

Currently, there are over 20,000 trained Talents teachers in the 1,500 adoption cities throughout 49 states. Additional adoption sites can be found in Canada, Mexico, Columbia, Greece, Thailand, Hong Kong, and Egypt. Over a million students have had Talents teaching for at least one year, and there are approximately 80 nationally certified Talents trainers.

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schedules vary widely, the frequency and regularity of planned thinking skills activities also varied widely. For both middle school and high school teachers, however, integrating thinking skills into the curriculum fostered better student performance.

Pre- and post-test scores of middle and high school students on the *Criterion Referenced Tests of Talents* (1974) yielded statistically significant increases on 11 of the 14 comparisons. These results document the substantial impact of the Talents Unlimited program on improving higher-order thinking skills among middle school and high school students.

Success in Secondary Schools

After more than a decade of success at the elementary level, Talents Unlimited is proving itself at the secondary level as well. Successful implementation of the model in school districts in Las Cruces, Benton, and Vestavia Hills now offers convincing evidence that development of thinking skills can be combined with academic content across the secondary curriculum.□

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A Model Project

Help Students Become Active Thinkers (It's never too early to start!)

By Dr. Carol L. Schlichter

As a classroom teacher of many years, I share an observation about children that is supported both by sound research and common sense: there are different ways in which youngsters are smart. For example, some youngsters exhibit the traditional school smarts, i.e., they absorb and retain information and can give it back easily when asked. Other youngsters show their special skills when there is a troublesome problem to be solved, or when a new and creative idea is needed for a situation, and some youngsters are absorbed in wondering about the what *ifs* (e.g., what might happen if there were no domesticated animals?). Still other children show smarts in using language to communicate ideas and feelings in varied and interesting ways, in making decisions, and in organizing projects.

This concept, that different people have different ways of dealing with information, and the idea that we as teachers can use individual strengths or smarts to help youngsters learn skills and concepts in the school curriculum, is not my original idea. A major tenet of John Dewey's (1910) progressive education plan was that youngsters should be problem solvers. Piaget's extensive work on defining the stages of intellectual development focused on the importance of children's interaction with ideas and materials (Maier, 1965). Calvin Taylor (1968) was one of the leaders in defining the multiple talent theory. Hunt (Pines, 1979) emphasized that cognitive development does not come just from exposure to stimulating environments—rather, the child must be allowed to cope and to interact with the environment. Torrance (Torrance & Myers, 1973) has long advocated the importance of student involvement and action in the development of creative and critical thinking skills.

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Talents Unlimited Project

I had the special opportunity to direct the Talents Unlimited project in Mobile, Alabama, where the multiple talent theory was put to the test in thirty-seven classrooms. What we found in three years of research was that teachers can learn to identify and develop six kinds of talents or strengths of young children of widely varying ability. (See suggested activities later in this article.) Just as Calvin Taylor predicted, nearly 90% of these students experienced success in at least one of six areas of abilities.

Critical Factors In Improving Thinking Skills

While the goal of developing active learners has been accepted eagerly by most educators, the process by which students' thinking skills can be enhanced has been a subject of some debate. Recent research suggests that efforts to improve students' thinking skills must attend to several factors: 1) identifying specifically the skills we wish to teach 2) provide direct and systematic classroom instruction in how to use these skills 3) devise and implement developmental curricula that integrate the teaching of selected thinking skills with various content areas (Beyer, 1984).

Talents Unlimited Model For Teaching Thinking Skills

A thinking skills model which has effectively addressed these factors is provided by the Talents Unlimited project, one of the innovative educational programs funded through USOE *(Educational Programs That Work*, 1978). Talents Unlimited is an instructional model for helping teachers identify and develop multiple thinking skills or talents in youngsters, including talents in productive thinking, forecasting, communication, planning, and decision making, as well as the academic talent. See Table 1 for a description of thinking skill clusters and specific operational definitions of the skill components comprising each cluster.

This project represents a highly effective research-based implementation of the multiple talent approach to teaching, defined by Calvin W. Taylor (1968) and based on work by J. P. Guilford (1956) regarding the nature of human intelligence. The success of the Talents Unlimited program in identifying and developing individual student thinking abilities resulted in the validation of the project and its membership in the National Diffusion Network as a developer-demonstrator project.

Classroom strategies for implementing thinking skills instruction were developed and tested. These strategies reflect much of what we know from research on the kinds of behaviors teachers use that seem to enhance student learning (Costa, 1981). Specifically, teachers are trained in the following instructional skills: 1) giving directions or asking questions which contain specific cues for the cognitive tasks the student is to perform (see Table1) 2) providing time for students to respond 3) accepting/rewarding students' ideas and building upon their ideas 4) modeling the thinking skills for students.

Instructional Activities For Teaching Thinking Skills

Integration of thinking skills instruction into all content areas is a critical factor in the Talents Unlimited model. Students vary not only in their preference for, and skill in using various thinking operations, but in their interest in various subject matter. The activities presented as examples in this article were developed and used by teachers of primary-age students as a part of the regular classroom instructional program. Numerous other examples are contained in the Talent Activity packet (1974).

Forecasting: How Could It Have Happened?

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feed them, etc.), give directions for selecting the best solution by considering/discussing such criteria questions as: Would this really work? Would it be safe? Would it cost too much? Could people still enjoy the animals? As students decide on the best solution, help them defend their choice with reasons based on their answers to the criteria questions.

Student Response: Problem-solving is high level thinking so be sure to provide sufficient time (and be tolerant of silence) so students can generate their own solutions. To make this kind of activity more realistic to students, ask the zoo manager or a docent to meet and talk with students when they visit the zoo to share solutions they have used/are using to deal with this problem. As students share and compare their own solutions with the zoo workers, they can gain insight about solving problems in the real world of work.

Planning: A No-Sweets Party

Subject Matter Context: Unit on dental health; students have developed concepts about nutrition and care of the teeth. The following activity serves as a culminating experience to the unit.

Teacher Talk: "Let's use what we have learned about dental health to plan a party that will please our dentists and also be loads of fun—a no-sweets party! I'll record on the board the four parts of the plan as you tell me your ideas: 1) describe the kind of no-sweets party we will have 2) list all the things we will need for this party 3) tell the steps, in order, that we will have to take to get ready for the party 4) identify some problems we might have with our plan; then, we'll try to improve our plan."

Student Response: The best results with this planning activity have developed when students have been encouraged to put their plan into action and carry out the party (with invitations to dentists included!). The "proof of the pudding" in planning efforts is how well the plan worked. The teacher should engage students in a follow-up discussion in which they talk about and compare the party plan with the actual events.

Productive Thinking: A Sign of Honor

Subject Matter Context: Social studies unit, "The Native American"; students have had learning experiences which helped them understand how Native American tribes used different and unusual ways of indicating the achievements of their tribe members (e.g., the use of an eagle feather as a headdress to indicate deeds of bravery and leadership). Students may also be shown a picture of a Seminole woman wearing many strands of colored beads (sometimes as much as 25 pounds of beads!) which indicated acts of virtue or other achievements.

Teacher Talk: "In the next few minutes, I want you to think like a Native American and draw or write all the different, unusual ways your tribe could show the accomplishments of its people. You will need to see everyday things in nature in new and different ways. You may want the boys and girls of your tribe to show their achievements through something special they do to their home or their clothing. Think of really unusual things you could do to show special honors."

Student Response: While students may initially tend to give responses which fall into the category of jewelry or headdress, with patience and encouragement they can be guided into such responses as: paintings on shelter depicting accomplishments; carvings or totems in front of homes; special privileges; special hair fashions, etc.

Communication: How Did They Get Such Names?

Subject Matter Context: Social studies unit, "The Native American." The timing for this activity might be keyed to students' natural curiosity about the names Indians used for themselves (e.g., Little Sky Bear, Big Deer, Alligator Stand Up). In preparation for the main task, lead students in a discussion of what these names could have been derived from, i.e., a physical characteristic, an aspect of the person's personality, etc. Illustrate with an example such as the following one for Alligator Stand Up: he was as mean/strong as an alligator (personality); when he stood up he was as tall as an alligator is long (size); he had sharp pointed teeth like an alligator (special physical feature).

Teacher Talk: "Pretend that you are to be made an honorary member of a Native American tribe and will be allowed to choose your Native American name. In preparation for naming yourself, think of yourself in the several different ways listed below. Record all the different comparisons you made about yourself on the worksheet."

Comparing Myself to Special Things
In Special Ways
(worksheets)

I am as brave as _____	_____
I am the size of _____	_____
I am as strong as _____	_____
I am as friendly as _____	_____
I am as skillful as _____	_____
I am as clever as _____	_____
I look like _____	_____

Student Response: After students make many, different comparisons on the worksheet, they put some of the ideas together and create their Indian names. Sharing Indian names with class members involves a clear explanation of the name based on individual comparisons.

Productive Thinking: Twos

Subject Matter Context: Math, numeral concepts; share John Drinkwater's poem, "Twos" which names a variety of things (some ordinary and some surprising) which come in twos—eyes, arms, legs, luggage straps, collar studs, and pigeon's eggs! As part of the warm-up process, have students use productive thinking to add to this list of things that come in twos.

Teacher Talk: "Now I want you to do some more productive thinking, this time about the numeral three. We are going to go on a search for all the varied and unusual things that come in sets of three. Start your search in our classroom and around our play area (students may name a three-drawer filing cabinet, a three-sectioned window, a three-speed record player, three-wheeled toy, three-seater swing set). Add any other ideas for things that come in threes even if you cannot see them here (e.g., triple-scoop ice cream cone, wheels on a tricycle). After the class has collaborated on a list of things that come in threes, focus individual effort with a final instruction: "Now, try to find a set of threes that no one else in our class would think of and draw your unusual idea of something that comes in threes on a piece of drawing paper."

Student Response: Students are not only gathering examples for learning a numeral concept; they are developing observation skills and experiencing both cooperative effort (contributing to the class list) and individual effort (finding and drawing an idea no one else would think of).

Decision Making: Yes, Yes, Yes!

Subject Matter Context: The academic context for this activity is found in Lucia and James L. Hymes' poem, "My Favorite Word", which begins: "There is one word—My favorite—The very, very best. It isn't No or maybe. It's Yes, Yes, Yes, Yes, YES!" After the poem is shared and discussed, using whatever language experiences are appropriate for the students, the teacher can focus on a decision making activity.

Teacher Talk: "Use your decision making skills to decide on the thing you would most like to have someone say "yes" about to you. First, let's think of things together we would like to hear "yes" about. I'll record your ideas as you give them to me (teacher might make simple rebus pictures on chalkboard). Now, think carefully about each "yes" idea so you can decide on the one you like best. Ask yourself these

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Subject Matter Context: Science unit, "Plants and Animals of Long, Long Ago", students have looked at pictures of dinosaurs and discussed basic information about size, habitats, period in which dinosaurs lived, etc. The concept of extinct has been developed.

Teacher Talk: "Dinosaurs died out slowly as things around them changed. Even though no one knows exactly what happened to these long-ago animals, we can use our forecasting skill to make some guesses. Predict many, varied things that could have caused dinosaurs to become extinct."

Student Response: Students are encouraged to explore widely the possibilities for the extinction of dinosaurs. Some of the responses may include changes, perhaps over a great period of time, to which dinosaurs could not become adapted, such as changes in temperature or humidity, diminishing of food sources, increase in number of predators, or a combination of factors. Many student predictions can be discussed in light of present knowledge, but even highly speculative predictions should be accepted and discussed in terms of newly developing scientific knowledge and techniques for uncovering new ideas.

Table 1

Description of the Multiple Talent Model

Talent Areas	Definition	Skill Components
Productive Thinking	To generate many, varied and unusual ideas or solutions and to add details to the ideas to improve or make them more interesting.	Think of MANY ideas; think of VARIED ideas; think of UNUSUAL ideas; ADD TO your ideas to make them better.
Decision Making	To outline, weigh, make final judgments, and defend a decision on the many alternatives to a problem.	Think of many, varied things you could do, ALTERNATIVES; think more carefully about each alternative, CRITERIA; choose one alternative that you think is best, DECISION; give many varied reasons for your choice, REASONS.
Planning	To design a means for implementing an idea by describing what is to be done, identifying the resources needed, outlining a sequence of steps to take, and pinpointing possible problems in the plan.	Tell WHAT you are going to plan so someone else will know what your project is; tell all of the MATERIALS AND EQUIPMENT you will need for your project; tell, in order, all of the STEPS NEEDED to complete the project; tell the many, varied PROBLEMS that could keep you from completing the project.
Forecasting	To make a variety of predictions about the possible causes and/or effects of various phenomena.	Make many, varied PREDICTIONS about a situation.
Communication	To use and interpret, both verbal and nonverbal forms of communication to express ideas, feelings and needs to others.	Give many, varied SINGLE WORDS TO DESCRIBE SOMETHING; give many, varied SINGLE WORDS TO DESCRIBE FEELINGS; think of many, varied THINGS THAT ARE ALIKE IN A SPECIAL WAY; let others know that YOU UNDERSTAND HOW THEY FEEL; make a network of ideas using many, varied COMPLETE THOUGHTS; tell your feelings, thoughts, and needs WITHOUT USING WORDS.
Academic	To develop a base of knowledge and/or skills about a topic or issue through acquisition of information and concepts.	Skill components vary from grade to grade.

Forecasting: Dinosaurs Today?

Subject Matter Context: This activity could be used as a follow-up to the earlier forecasting activity. "How Could It Have Happened?" or could be used alone to stimulate students' imaginative thinking about a hypothetical situation. The teachers should read aloud the first few pages of *If The Dinosaurs Came Back* by Bernard Most (Harcourt Brace Jovanovich, 1978) before giving directions for student predictions.

Teacher Talk: "You just heard how someone else used his forecasting skill to predict some things that could happen if dinosaurs lived on earth today. I want you to use your forecasting skill and predict many, varied other things that might happen if dinosaurs lived here today."

Student Response: Students might tell or draw their predictions. Their responses are likely to reflect both highly imaginative possibilities and predictions which demonstrate scientific concepts they are developing. After students have shared their predictions, the rest of the story may be read.

Decision Making: Trouble At the Zoo

Subject Matter Context: Social studies/science content related to a planned field trip to a local zoo. This activity would be preceded by many activities/experiences related to animals which children will be viewing at the zoo. Part of those activities would focus on the proper care and feeding of animals in captivity. The teacher will need to prepare a large sign that says "PLEASE DON'T FEED THE ANIMALS."

Teacher Talk: Show/read the sign to students and explain: "The workers at many zoos have a special problem. Signs like this are all over the zoo but some people keep on feeding the animals, and sometimes the animals get sick. Use your decision making skills and think of some different things the zoo workers could do to get people to stop feeding the animals." When students have generated several alternatives (e.g., don't sell any food on zoo grounds, give tickets/fines to people who feed animals, put up fences so people can't get close enough to animals to

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questions: Would I really want someone to say "yes" about this? Would this "yes" make me happy? Would this "yes" make others happy? Would this "yes" help me in some way? Choose the one "yes" idea you like best and be ready to tell many, varied reasons why you chose it.

Student Response: All responses will be oral. You may choose to structure the sharing process by asking students to give their decisions and reasons using this framework: The best "yes" idea for me is _____
because _____
because _____
because _____

When young students falter on the reasons, the teacher should assist by reminding them of the questions above and helping them turn their answers to the questions into reasons (e.g., if a student says he chose a particular "yes" idea and answers "yes" to your probe, "Would this make you happy?" then help him phrase the reason "because that would make me happy."

Communication: A Closer Look

Subject Matter Context: Science unit, "Living Things Grow and Change"; one of the skills in this unit is learning to observe specimens with simple tools, such as a magnifying glass. Each student is given a similar leaf specimen from the same plant.

Teacher Talk: "I want you to look closely at your leaf specimen and tell me many, varied single words you could use to describe it. Use all of your senses to observe this leaf. Look for the special things about this leaf and give me single words to describe the leaf. I will write your describing words on the board." Following a period of response in which students give a variety of describing words, hand out magnifying glasses and continue the communication activity with these directions: "Now, look at your leaf under the magnifying glass and notice new things about your specimen. Give me some words that describe this leaf that are different from the words in your first list." Follow the observation period with a discussion of the differences between observing something with the naked eye and observing it with magnification. Then, lead students to use their lists of words to develop two short paragraphs or a poem that explains how a leaf looks when you see it only with your eye and how it looks when magnified.

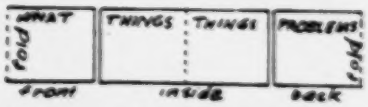
Student Response: This describing and writing exercise is another approach to a language experience which can help young students clarify the skill of observation and use the scientific tool of magnification.

Planning: Nestle's QUIK!

Subject Matter Context: Science unit, "Solids, Liquids, and Gases"; this activity was developed specifically for helping students understand that some solids can be completely dissolved into liquids. Just prior to the main task, the teacher displays an ad for Nestle's Quik chocolate drink mix and encourages students to share their experiences in mixing the powder in their milk.

Teacher Talk: "You have been describing how you have made chocolate milk by mixing Nestle's Quik in your milk. Milk is a liquid and Nestle's Quik powder is a solid. If you mix the Nestle's Quik in milk, then the solid becomes part of the liquid. We can demonstrate this change by using our planning skills. We will draw (or tell) the parts of our plan for mixing a solid and liquid as we answer these four planning questions: 1) WHAT are we going to make? 2) What THINGS will we need? 3) What STEPS will be taken to make the drink? 4) What PROBLEMS might we have with our plan?"

Student Response: If students draw their plans, a planning booklet made of a 12" x 18" piece of drawing paper would be suitable. Each page of the booklet should be labeled as shown below—



An essential part of developing youngsters' planning skills is in putting the plan into action. A follow-up discussion can be used to guide even the youngest students in evaluating how well their plans worked.

It's never too early to start helping kids learn thinking skills. With your guidance, this pow project will take youngsters beyond the academic realm into skills that will be theirs for a lifetime. ↓

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Juried Review of Talents Model

SOURCE OF JURIED REVIEW:

Center for Creative Learning (Treffinger, Cross, Feldhusen, et al.)
Handbook for Productive Thinking Volume I: Foundation, Criteria, and Reviews, Dubuque, IA: Kendall/Hunt Publishing Company,1994.

TALENTS UNLIMITED

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GRADE LEVEL
Kindergarten - grade 6

COSTS

TNT manual	$ 55.00
TAP lesson plans	$ 50.00
CRT packet	$100.00

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SPECIFIC MODEL OR RATIONALE STATED:

The multiple-talents approach to thinking was defined by Calvin Taylor and is linked with J. P. Guilford's research on the nature of intelligence.

SUBJECT MATTER CORRELATES:

The strategies provided correlate with all subject areas.

RESEARCH / EVALUATION DATA OR RELEVANT PUBLICATIONS:

Research on Talents Unlimited from the initial research (1971-1974) to the most recent formal documentation (1990) is available upon request from the national office in Mobile, Alabama. Additionally, *Thinking Smart: A Primer for Talents Unlimited* (1993) edited by Carol Schlicter, the original research director, is available through Creative Press.

NARRATIVE REVIEW AND ANALYSIS:

Talents Unlimited is a teaching/learning model for thinking skills instruction. The program represents a classroom-level, research-based implementation of the multiple-talents approach to teaching. The model features four major components: 1) a description of specific skill components in the talents programs of productive thinking, decision making, planning, forecasting, and communication; 2) model instructional activities which demonstrate the function of this teaching method in enhancing academic learning; 3) an in-service training program to assist teachers who will be working with this program as a tool for nurturing students' many thinking abilities; and 4) an evaluation system for assessing the students' development in the area of thinking skills. Students of any ability level have benefitted from lessons based on this model, and the program has been used successfully across the curriculum with all grade levels through high school.

Taylor has recently identified three additional talent areas: implementing, human relations, and discerning opportunities.

Currently, curriculum materials based on Talents Unlimited are being developed and fieldtested for use at the secondary level.

Materials or Program Ratings—Summary Sheet

Title: Talents Unlimited
Authors: National Talents Unlimited Staff

		Not Present Or Not Applicable	Present
1.	Sound Theoretical Foundation	____	__x__
2.	Balancing Appropriate Training and Ease of Use	____	__x__
3.	Responsive to Individual Differences	____	__x__
4.	Curriculum Relevance and Curriculum "Stretching"	____	__x__
5.	Sound Principles of Instructional Design	____	__x__
6.	Structure and Organization	____	__x__
7.	Scope and Sequence	____	__x__
8.	Social and Cultural Appropriateness	____	__x__
9.	Concern for Metacognitive Skills	____	__x__
10.	Appropriate Modeling of Applications	____	__x__
11.	Responds to Student Interests and Motivations	____	__x__
12.	Active Involvement and Experiential Learning	____	__x__
13.	Appropriate Assessment Resources	____	__x__
14.	Supported by Research and Evaluation	____	__x__
15.	Format and Usefulness	____	__x__

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"Talents Dovetail" Flyers
Endorsing the Compatibility of Talents with
Other Instructional Innovations

THE TALENTS DOVETAIL: AUTHENTIC ASSESSMENT

dovetail: to fit skillfully to form a whole

The Talents Unlimited critical and creative thinking skills model empowers students to implement a cycle of thought processes which aid in conducting academic investigation, integrating knowledge, and addressing tasks in real world contexts. As the student addresses a meaningful task either individually or in a group, the educator can gather authentic evidence of student accomplishment. Students can greatly impact their efficiency and effectiveness with these types of assessment tasks when able to confidently apply the Talents processes to addressing such problems. Therefore, classroom instruction can effectively utilize Talents to provide a structure for student inquiry and problem solving.

"Talents Unlimited activities and authentic assessment activities are both unobtrusive, ongoing, individualized, open-ended, representative of real classroom activities, a direct measurement of desired performance, tied to the curriculum, and considered worthwhile by teachers and students. I have seen a noticeable improvement in the use of authentic assessment in Talents classrooms. Talents trained teachers do a better job of utilizing authentic assessment because they continually infuse a variety of learning activities in all areas of the curriculum and have an open, inviting environment conducive to effective use of authentic assessment. Students' use of the Communication, Decision Making and Planning talents provide tools to make authentic assessment tasks an effective measure of student learning."

- Dr. Mary E. Keithley; Director of Gifted Education/Curriculum; Greene County Educational Service Center; Yellow Springs, OH

"In authentic assessment, we match how we test with how we teach. While working with third graders on a design technology project, the reality of authentic assessment as an on-going process that helps emphasize what students know rather than a series of tests that help identify what they do not know became very evident. After showing the students a hanging ornament whose arms and legs move when you pull the string u[illegible]erneath, I asked the children to construct one of their own using the concepts and principle[illegible]hey had learned during their simple machines unit. Immediately, the children began a Planning lesson: what will we need, how will we put it together, what if something doesn't work... and that led them right into a decision making lesson: what are the many things we could do, what questions will we want to ask... These students demonstrated their knowledge and skills in

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a meaningful way using Talents Unlimited and authentic assessment in the same lesson. This is a wonderful project for children to include in their portfolios: problem-solving skills, communication strengths, critical and creative thinking abilities, teamwork - all in much demand in the workplace."

- Martha Libersky; School District of Bloomer; Bloomer, WI

"Talents Unlimited can be used to assess students' academic talents in lieu of the traditional paper and pencil testing of students' knowledge. Although Communication behavior #5 easily comes to mind, other talents can also be used to assess student understanding of the content the teacher is teaching. Usually authentic assessment is project oriented and includes a measurement tool.

The use of Talents for authentic assessment can be as simple as primary teachers using Productive Thinking transformations to check for understanding of number concepts. Jean Schmitt asked her first graders to transform the number eight and then to draw eight "things" to go with the transformation. One student transformed the eight into a horse and surrounded it with eight horseflies. A fifth grade teacher, Chanda Harms, after teaching quotation marks asked her students to transform a set of quotation marks. The assessment came when the students were to write a sentence about their transformation, using quotation marks correctly. These two examples are very simple, but students are applying their Academic Talent and strengthening it through creativity.

When students are doing demonstrations as a part of their academic assessment, the Planning talent comes to mind. The student's individual plan could be part of the measurement tools along with the project the student demonstrated. The Decision Making talent can be used in the academic areas of science, geography, social studies, or literature as part of the measurement tool to assess understanding. After a study of how and why a region was settled, students could be given an imaginary map and use the Decision Making talent to choose where they would start a settlement and why they chose the location they did, bearing in mind the criteria questions focusing on the needs of a successful settlement.

Critical and creative thinking skills need to be a vital part of the curriculum if we are to prepare students for the future. What better way to show the importance and real-life aspects of thinking skills than to incorporate Talents and authentic assessments."

- Coleen Ehresmann; McKinley School; Watertown, SD

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THE TALENTS DOVETAIL: CATHOLIC EDUCATION

dovetail: to fit skillfully to form a whole

The philosophy and approach of the Talents Unlimited critical and creative thinking skills model are very compatible with those of Catholic education.

1) Catholic education is student centered. The Talents model is based on the assumption that each student has abilities or talents in a variety of areas. Guided practice in the use of the Talents thought processes (Productive Thinking, Communication, Forecasting, Decision Making, and Planning) can enhance each student's potential and help him/her to appreciate the talents of others.

2) Catholic education is academically challenging. The Talents processes are motivating and help students reach the highest levels of thinking to enhance and motivate student learning in any content area.

3) Catholic education seeks to prepare students to contribute toward a world of justice and peace. With deliberate practice, these thought processes are internalized by students and empower them to address real-world situations.

"Because the Talents Unlimited process model for classroom instruction respects the range of student learning styles within a classroom setting, teachers are able to challenge all students to use and develop higher level thinking skills. While Catholic schools teachers in the Archdiocese began using the Talents model over 20 years ago and individual teachers continued to use the ideas and activities, a strong system-wide support was not maintained. With the 90's, we saw a renewed emphasis on 'hands-on' activity, recognition of diverse learning styles, and problem solving strategies. Administrators at local schools and the Archdiocese saw the need and decided to plan for increased use and systematic support for the Talents model in-our classrooms. Continued inservice and across the curriculum application has strengthened the curriculum and allowed students to be successful. Through Productive Thinking, Planning, Decision Making Forecasting, and Communication students and administrators gain skills not only for the classroom but for life."

- Sister Joyce Ann Hertzig, O.P., Curriculum Coordinator; Archdiocese of Mobile; Mobile, AL

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"Through Talents we are able to model and provide unique opportunities for children to understand their own contributions that enrich the communities of classroom, school, and parish in which they live.

Children are challenged to use their creative and critical thinking skills and take responsibility for their own learning. In addition, they are encouraged to develop a social conscience that takes the teachings of Jesus into the world to make a difference for good."

- Jane Welling, Principal, and Katie Gregg; St. Mary School; Cincinnati, OH

"When teachers began implementing the Talents Unlimited model, they found new strategies that help students not only to maximize potential by also to feel good about themselves. Children who had avoided active participation began to respond freely and enthusiastically. Students began to experience more fully the joys of learning and thinking. Teachers have become very creative at integrating Talents lessons into their curriculum because the words, 'It's time for a Talents lesson,' cause a transformation in their students. Their eyes light up, they sit up straight, and they are raring to go."

- Janet Solomon; Pope John Paul II School; Paterson, NJ

"The Gospel requires me to look for and affirm the good in every human being with whom I live and work. In my work environment at Holy Family Catholic School, Talents Unlimited has given me a positive and effective way to recognize the beauty and unique individuality of each of my students and fellow faculty members. Alertness to the talents in each person allows me to see each one more clearly, as I believe Jesus would see that person.

Talents Unlimited is easily infused into an existing curriculum. Whether there is a need to be a problem solver or to work though the steps of writing, Talents provides a broad spectrum of tools for students to become successful contributors to a world ever in need of competent people of solid moral character."

- Maureen Zientek; Holy Family School; St. Petersburg, FL

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THE TALENTS DOVETAIL: INTEGRATED LEARNING

dovetail: to fit skillfully to form a whole

Integrated learning provides connections among academic curriculum areas so that students can better understand content as well as the application that the learning has to everyday life. Instruction revolves around questions, problems, or themes which serve to capture student interest. Talents Unlimited facilitates this investigation by teaching a thought process structure, related to real world application, needed for effective student inquiry. Therefore, students learn the HOW of inquiry lending confidence as students investigate the WHAT of the question, problem, or theme.

"As a Language Arts/Literature teacher, I could teach in a 'sterile' environment parsing sentences and reading the 'classics'. However, over the course of many years in junior high, my students and I have found that integration with the Social Studies or Science teachers is more interesting.

At the beginning, integration was often easier said than done. We often heard complaints that the topics we selected were 'boring' or impossible to research. More often we heard that we teachers gave contradictory directions or had different expectations.

Then several of us were trained in Talents, and gradually we realized the students were whining less frequently. We've identified several pluses that have resulted from Talent-izing our integrations. We now have a common vocabulary which enables us to communicate clearly with each other, as well as the students. Our 'teacher talk' is crisp and concise, thus easier to follow. Most importantly, our students have taken responsibility for their learning by generating topics of personal interest, making well thought out decisions, and planning effectively. Successful integrations for our junior high students also reap positive emotional and behavioral benefits."

- Julie Jaquish; Lisbon Central School; Lisbon, CT

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"Two of the goals of thematic teaching are to integrate knowledge among subject areas and to reinforce learning in one subject area by using it in another. Talents Unlimited is the perfect vehicle for doing this. Whether the unifying theme is concrete such as 'The Farm' or abstract such as 'Change', Talents can be used effectively to teach content and theme.

The Farm

Use your Productive Thinking talent to think of many, varied, and unusual sources of food. (Social Studies and Science)

Use your Communication talent behavior #2 to give many, varied, single words to describe a wheat farmer's feelings as s/he watches grasshoppers eat his or her crop. (Language Arts)
Use your Decision Making talent to decide whether or not you would like to be a farmer. (Social Studies, Science, and the affective domain)

What if hail destroyed the entire U.S. apple crop? Use your Forecasting talent behavior #2 to make predictions about the effects of such an event. (Science, Health, Math, Economics. Geography)

Use your Planning talent to plan the building of a model farm. (Art)

A first grade teacher doing a unit on the farm reported that her children were playing 'farm' at recess. 'One of the students had taken the leadership role and was telling the other children where the barn was to be and who was to be the cow and so forth,' the teacher said. 'One little girl piped up to him, 'Just wait a minute, Ben. I have a Planning talent, too!' They then proceeded to plan the building of a farm together.'"

- Donna Brinkmeyer; Boeblingen, Germany

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THE TALENTS DOVETAIL: LEARNING THROUGH LITERATURE

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The Talents Unlimited model provides a structure to help teachers guide students in the application of the critical and creative thinking needed to achieve the vital components of literacy: fluency and responsibility in the communicative arts. Through the use of the various talent areas, students gain insight into literature while internalizing the Talents thought processes. This metacognition allows students to independently apply these critical and creative thinking skills to future learning experiences.

The use of the Talents processes helps to create a bridge between the students' real life experiences and the characters and situations they encounter in literature. This opens a window for student understanding and appreciation for the diverse ethnic, cultural, and economic perspectives present in the class. This real world connection with Talents enhances student understanding of literature, increases student motivation, and expands student appreciation of reading.

"Imagine this classroom scene: the list on the chalkboard gets longer and more explicit as students excitedly use Communication talent behavior #3 to add their own descriptive images to the simile sentence stem, ' The night was as black as _____'. Activities such as this one, related to a story's setting, demonstrate how linking learning with literature comes easily when using the Talents Unlimited model.

Opportunities to effectively use the critical and creative Talents processes abound in literature. Previewing and building background for a new piece of literature are strategies essential for better reading comprehension. The Productive Thinking talent area can effectively awaken students' prior knowledge of a topic. Characters' actions and feelings can be described through the Communication talent. As a story plot develops, the causes and effects of certain events can be explored and examined through the components of the Forecasting talent. While they walk the story line, students can use Decision Making to decide whether they agree with the choice made by a character or, on the other hand, if they would choose a different ending, paving the way for writing.

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The understanding of literature selections can be strengthened as students use the various talent areas to create poems, songs, skits, or any of the other student-generated responses to their reading. As comprehension strategies are modeled in literature activities using Talents, the thinking skill strategies are also reinforced. Talents Unlimited is a dynamic and effective interface between literature and learners."

- Maureen Zientek; Holy Family School; St. Petersburg, FL

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THE TALENTS DOVETAIL: MULTI-AGE / NON-GRADED CLASSROOMS

dovetail: to fit skillfully to form a whole

Talents Unlimited is a critical and creative thinking skills model which allows students to draw upon their knowledge and experiences to understand academic curriculum. Talents activities are not age or grade specific. A Talents teacher in a multi-age or non-graded classroom would design a Talents lesson to address a particular academic content and concept. The students use the particular thought process designated to respond to that activity from their various levels of knowledge and experience. A young student with limited language facility could experience success in addressing the activity at one level of sophistication. An older student with a greater variety of academic and life experience, would respond to the same activity from another level of sophistication and insight. Both, however, are successful and learn from one another's perspectives.

"Teachers in multi-age and/or non-graded classrooms, especially those with a 'focus' such as gifted and talented or special needs, deal with a very diverse population which has homogeneous needs. Talents lessons produce terrific results while providing structure and encouraging self-control and self-direction. Eric Quinn, a teacher at Lisbon Central School, phrased it best (when he) likened Talents to the handle of a ratchet that has different socket attachments to fit a variety of bolt heads -- that handle is basic to many sizes."

- Sandy Fideli; Lisbon Central School; Lisbon, CT

"As a teacher in a primary Continuous Progress pod of multi-age classes in rural Florida, I find the Talents Unlimited model very effective in encouraging students to construct meaning by helping students make connections between their knowledge, experiences, a dn the academic curriculum. Talents lessons lend themselves easily to meet the individual needs of a heterogeneous group. Each lesson is enriched by the perspective the five year old as well as the eight year old. The outcome of each lesson is as unique as the children themselves.

When School Board members have visited our school, they have been impressed by the creative thinking demonstrated by these young primary students. I have been told

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that my Talents lessons have been a topic of positive discussion at a School Board meeting after one such visit.

Students grow in self-confidence and academic strength when they use the Talents thought processes. They realize that they are winners when given the opportunity to utilize their individual talents to perform an academic task. Never underestimate the power of the Talents model!"

- Jane Wenzel; San Antonio Elementary; Dade City, FL

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THE TALENTS DOVETAIL: PROCESS WRITING

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The process writing approach views writing as a recursive process involving more than just the finished product. Students are involved in choosing their own topics, defining their purpose and audience, drafting and redrafting stories based on feedback from other students, and publishing their writing in some form.

The Talents Unlimited critical and creative thinking skills model can assist students in all phases of the writing process. The divergent thought processes (Productive Thinking, Communication, Forecasting, Decision Making, and Planning talents) assist primarily in the pre-writing, composing, and publishing stages. As teachers guide students through these parts of the writing process, students use Talents to generate ideas as well as the language, both descriptive and figurative, to capture these ideas in writing. The Academic talent facilitates the more generally convergent steps of editing and revising. Students become aware of and control their thought processes as they become proficient writers.

"I can no longer imagine teaching integrated Language Arts literature, writing, listening, speaking, viewing, syntax, etc.) With out Talents.

Talents is especially useful in the writing process. The writing process steps are clarified and focused through the use of Talents terminology. Talents meets the needs of a diverse student population and gives them strategies that add depth and texture to their writing in a variety of genre.

Our Language Arts department has placed so much emphasis on using Talents as an integral part of the writing process that many of our students use it automatically. So much so, that we weren't too surprised to see our eighth grade students using Productive Thinking, Communication behavior #3, or Planning during the pre-writing time ' the Connecticut Mastery Test recommends students use before beginning the writing sa le portion of the test."

- Julie Jaquish; Lisbon Central School; Lisbon, CT

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"Process writing is based on the construct that good writing is, in large measure, good thinking. Talents Unlimited is a thinking skills program. The links between the two are natural.

One second grade teacher uses the Productive Thinking and Communication talents with her students to generate lists of words. She, then, keeps these lists posted around her classroom. 'It's amazing,' she says, 'how often the children go to these lists to find words for their writing. They especially use the lists of feelings words (generated using Communication behavior #2) and our list of alternatives to the word 'said' (generated using Productive Thinking). Their vocabulary is just exploding!'

By teaching the individual skills necessary to be successful in process writing, the teacher increases the odds for success and eases his/her own work load. Students who know and can independently apply these skills are much more autonomous and in charge of their own learning, leaving the teacher more time to conference with and coach students."

- Donna Brinkmeyer; Boeblingen, Germany

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THE TALENTS DOVETAIL: SCHOOL RESTRUCTURING

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Talents Unlimited is a critical and creative thought process model which identifies and addresses thinking skills in practical ways which are applicable to the world of work. This teaching/learning program enables teachers to develop and weave high level thinking activities into the fabric of student learning. Students learn about these thought processes as they apply them into their content area investigation and problem solving.

A Talents-trained faculty possesses a common language and process structure to address problem solving in their "world of work" restructuring efforts.

"Eight years ago, Sidney City Schools adopted the Talents Unlimited thinking skills model for all students K-12. Ninety-five percent of the certified staff are Talents trained, including most of the administrators. Talents provides a common language and has strengthened our own thinking skills. Four years ago, we began our school restructuring process with the Deming continuous improvement philosophy. Certified and non-certified staff, as well as students, have been easily trained to use Total Quality Transformation management tools because these tools are simply an application of Talents Unlimited thinking behaviors.

The Total Quality improvement process is a cycle of Plan-Do-Study-Act. A problem and its probable cause are identified, an intervention is planned and executed on a small scale, the results are studied, and successful interventions are then standardized. Improvement team members use the Talents processes at every step throughout this cycle. Talents Unlimited has taught our staff members and students to think divergently. School restructuring using total Quality Transformation is an exciting, practical u of our 'unlimited talents.''

- Meggan Weaver; Sidney City Schools; Sidney, OH

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"Talents Unlimited and TESA (Teacher Expectations and Student Achievement) are programs that are complimentary to one another. Lisbon Central School faculty, in particular, have found the training in both to be beneficial to their students, Pre-K through Grade 8. Talents and TESA both have, as a basic principle, the concept that a learner's self-esteem is extremely important if we are hoping to facilitate him/her to attain his/her greatest potential. As educators, it is our desire to offer high and low achievers the same quality of education. It is the objective of Talents and the TESA programs to bolster each student's individual strengths while fortifying against areas of weakness, therefore, ultimately enhancing self-esteem."

- Sandra Fideli; Lisbon Central School; Lisbon, CT

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THE TALENTS DOVETAIL: TECHNOLOGY AND TELECOMMUNICATIONS

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Talents Unlimited and communications technology complement one another to encourage both students' academic growth and teachers' professional growth. Talents Unlimited is a staff development model which empowers teachers to facilitate student critical and creative thinking. Students use these thought processes to generate, communicate, and analyze ideas as well as to provide a structure for addressing academic problems. Technology and telecommunications are vehicles for networking students and teachers with one another to gather information and conduct a dialogue regarding topics of mutual interest.

In addition to gathering information, a Talents teacher can use telecommunication technology to provide interaction with other Talents classes thereby expanding the pool of thinking in Talents activities. This interaction allows broader perspective on the academic issue which, in turn, can pique intellectual curiosity and inquiry more effectively than investigation done in isolation.

Talents trained teachers can also act as resources for one another via telecommunications technology as they share Talents activities they have created or ideas and materials which support student inquiry on academic topics. This interchange can inspire the development of additional Talents activities as well as a deeper understanding of effective applications of the Talents Unlimited processes.

"The primary grades in rural settings are not often thought of as hubs of telecommunications and technology activities, but my third grade class is a prime example of how younger students can rise to the challenge of and benefit from technology opportunities used in conjunction with Talents Unlimited. For example, my students use Productive Thinking to generate many, varied and unusual topics of interest to them. We then use those topics in two different ways; 1) I search various locatio n the Internet to find classroom activities centered around those topics, and 2) lents use their Communication #5 talent to formulate research questions centered around their topic of interest. They conduct an observation or survey in order to gather data to answer their research question. Then they use their Communication #5 talent again to rite an e-mail message to students at participating sites where those students then co uct the same

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research project. Data are exchanged, analyzed and compared at each site.

We participated in an Internet project in which we followed the travels of a man named Roger throughout Australia and Japan. Students were able to read his reports, communicate with other participating schools around the world, and ask questions regarding Roger's travels. We were able to use our Forecasting talent many times during this project such as: 1) Think of many, varied possible effects of having summer vacation at Christmas time, and 2) Think of many, varied causes for a man to want to travel around the world in his truck called 'Bubba'.

My class conducted a Montana Survey which gathered original data about the influx of people into Montana. First, we used our Forecasting talent to predict many, varied possible causes for Montana's recent influx of people. We received information from around the state that helped us understand the population growth in Montana. We showed on a map where the newcomers are coming from and used a table to show the causes for them to come to Montana, and what percentages are planning to stay.

Using telecommunications and technology in conjunction with Talents Unlimited has enriched my teaching and my students' learning."

- Suzy Flentie; Lewistown S.D. #1; Lewistown, MT

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THE TALENTS DOVETAIL: WHOLE LANGUAGE

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Whole language is a teaching/learning philosophy based on the beliefs that:

- students construct their knowledge from within,
- literacy activity should be a natural outgrowth of the interests of the students,
- reading is creating meaning from text,
- communication is the main goal of writing,
- learning to read and write is a social process, and
- risk taking is critical to growth in reading and writing.

[Manning, Gary; Manning, Maryann; and Long, Roberta, *Reading and Writing in the Middle Grades: A Whole-Language View*, Washington, DC: National Education Association (1990), pp.8-9.]

Talents Unlimited provides a critical and creative thought process structure an educator can use to help students draw upon previous knowledge and experiences to understand and apply academic content to new situations. Talents trained teachers provide a classroom environment which supports and encourages students as they risk engaging in the divergent Talents activities. Talents trained students also support and learn from each other as they generate relevant responses to meaningful problem solving opportunities.

"Talents Unlimited is an integral part of the Whole Language teaching process in Sidney City Schools in grades K-12. Communication enhances vocabulary development without the use of workbook exercises; Forecasting and Decision Making facilitate the development of critical reading skills in all content areas. Students who use their Productive Thinking and Planning Talents regularly, produce high quality narrative and expository writings.

A recent example can be noted from a sixth grade class. Our students entered a contest sponsored by Delta Airlines and Broderbund Software based on the television game show, Where in the World Is Carmen SanDiego? Contestants selected a landmark from their local community and wrote an essay describing Carmen's theft of the landmark, and the gumshoes' efforts to track her around the world and return the stolen item. One of our students is a regional winner and is now in competition for the grand prize. She used her Academic talent to study local historical landmarks. Then, she used Productive Thinking, Forecasting, Decision Making, and Planning to create the plot of her adventure. Using her Communication talent, she added descriptive language to add interest and suspense. Talents Unlimited thinking behaviors are used daily in our classrooms and have become valuable additions to our students' learning tool boxes."

- Meggan Weaver; Sidney City Schools; Sidney, OH

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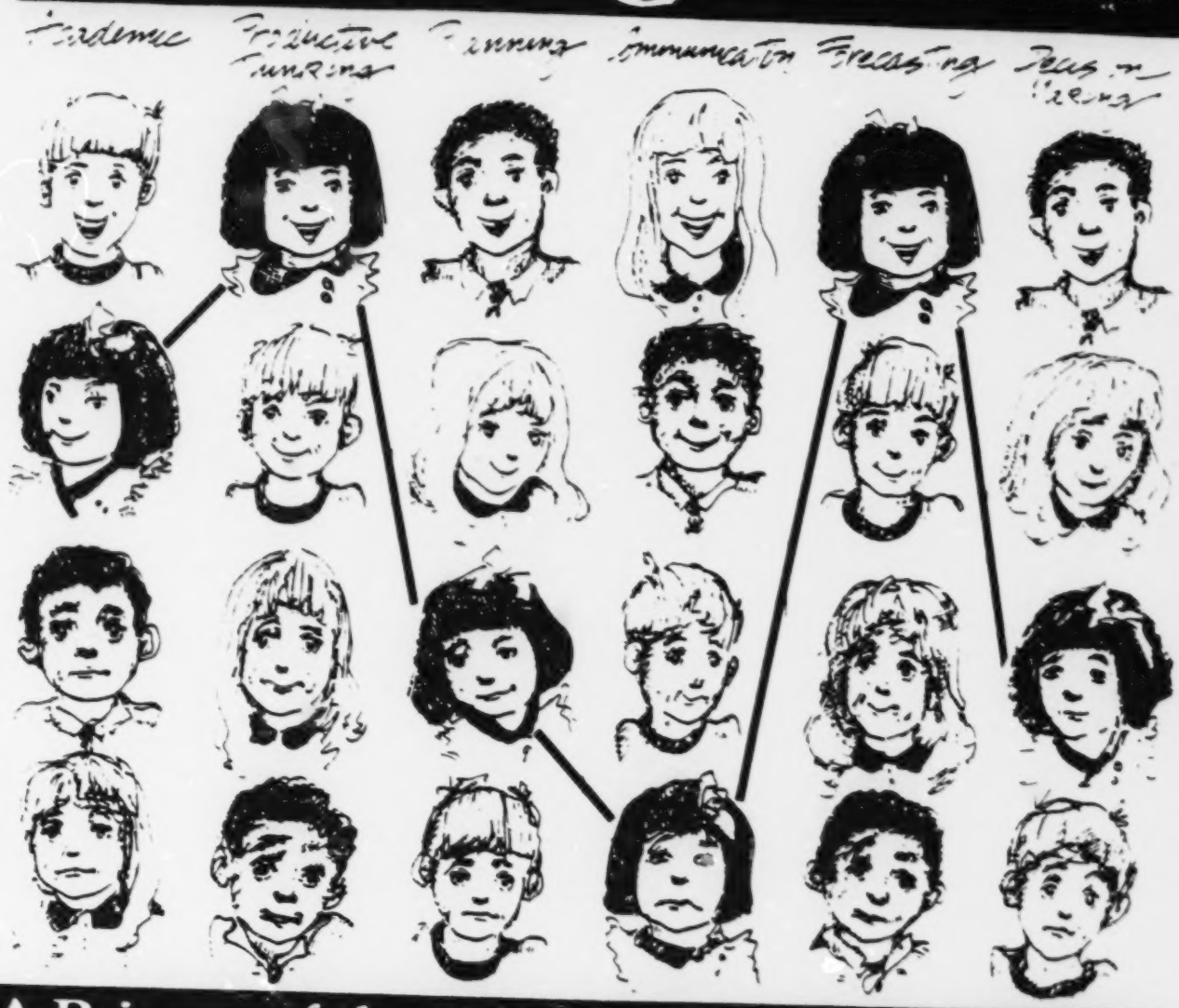
Suggested Talents Reading

Thinking Smart



A Primer of the Talents Unlimited Model

Edited by Carol L. Schlichter & W. [illegible]ss Palmer

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